# Market Sizing for Real Estate Property Information Services

Prepared for:

MOORE DATA MANAGEMENT SERVICES DIVISION

March 30, 1989

INPUT®

1280 Villa Street, Mountain View, California 94041-1194 (415) 961-3300

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# I. Introduction

INPUT, a well recognized international information services market research and consulting firm, has conducted a study for Moore Data Management Services (MDMS) to determine the size of the 1988 and 1993 real estate reassessment markets and the 1988 PINPOINT market.

## A
## Objectives

1. To determine the size of the 1988 and 1993 real estate reassessment markets as one consideration in Moore Data Management Services' acquisition of Sabre Systems.

2. To determine the 1988 latent potential market for PINPOINT services.

## B
## Scope

1. Develop a model to determine the size of the 1988 US real estate reassessment market and its component parts: mapping services, reappraisal services, hardware and software, and administrative services.

2. Identify the key factors which promote or inhibit market growth.

3. Forecast the 1993 US real estate reassessment market.

4. Present the revenues and market shares of the major players in the real estate reassessment market.

5. Determine the domestic U.S. market for MDMS' PINPOINT services.

## C
## Research Methodology

1. Held on site meeting with MDMS to initiate project.

2. Conducted literature search at National Association of Realtors library, Chicago; International Association of Assessing Officers library, Chicago; and Stanford University Government Documents Library, Palo Alto, California.

3. Completed telephone interviews with competitors, government assessing officers and trade association executives.

4. Developed logic for forecast of 1989 and 1993 markets for reassessment services and the 1988 market for PINPOINT services.

5. Documented findings and forecasts.

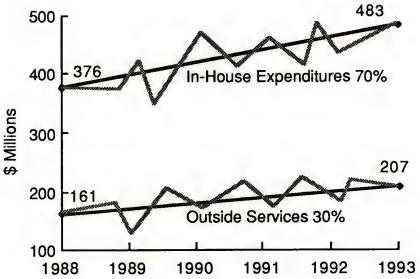
# II. Executive Overview

## A
## Real Estate Reassessment Market Size and Composition

*The 1988 market for real estate reassessment services is about $160 million. Assuming a conservative increase of 5% per year, the 1993 market will be about $200 million* (see Exhibit 1). The industry consists of two major companies, Cole-Layer-Trumble ($25-45 million) and Sabre ($15 million), a stable core of six or a dozen small ( <$5 million) companies and hundreds of other very small (<$1 million) companies which enter and leave the market each year.

EXHIBIT 1

**PROPERTY ASSESSMENT MARKET FORECAST**



## B
## Key Market Factors

One can forecast gradual increases in market size, but by and large, *the market in a given year, is unpredictable because one major statewide reassessment can increase the market by* 10%, 20%, or *as much as 30%. Some years might be down markets.* Industry observers have noted that the decision to vend a reassessment out-of-house seems to be an arbitrary one. The decision is determined more by historical precedent or personal penchant than by more easily discernable, quantifiable, or even logical factors. *The major limiter of this market is the number of jurisdictions which conduct reassessments in-house* (approximately 50-70% of the 13,434 jurisdictions described in Appendix A).

The market is primarily driven by a complicated series of interrelated political and legislative decisions that make it *unlikely for any service vendor to influence, in a material fashion, the number of jurisdictions which use outside reassessment.* The bottom line is: this is *not* a market that can be developed with traditional marketing techniques, even with the most outstanding product, technology, and sales organization. *The only dependable way to expand a vendor's influence in the outside services marketplace is to selectively and aggressively acquire the many very small companies headquartered in the local jurisdictions they serve.*

There may be creative approaches to this growth mechanism that sidestep the complexity of multiple acquisitions by taking the form of franchises or loose federations of small mass appraisers.

It may be possible to expand the existing outside services market by less conventional marketing techniques. *INPUT's recommendation is to form a property reassessment consulting organization which would assist a jurisdiction in planning and implementing all phases of the reassessment,* including budgeting, budget presentation to state and local governing bodies, operations, and public relations. This could create a small increase in the market within the jurisdictions that currently use outside vendors and might be a way, over time, to influence in-house jurisdictions to use outside vendors. There is precedent (International Association of Assessing Officers—IAAO) for the use of such consulting services although INPUT is aware of no organization which is pursuing it in a professional, aggressive and large scale manner.

## C
## Considerations

In acquiring Sabre, MDMS may wish to consider three issues. First, the *amount of overlap between the size of Sabre's clients and the size of MDMS' clients should be studied in greater detail.* Although Sabre has completed a 238,000-pacrel reappraisal for Kansas City, Missouri, and conducted reappraisals for 7 of the 10 largest counties in Ohio (100,000 to 450,000 parcels in each county), Sabre's current Connecticut clients are probably smaller jurisdictions (15,000 to 25,000 parcels). INPUT questions whether Sabre's management, supervisory skills and current client list are a good fit with data collection in substantially larger jurisdictions. If not, would the organizational culture be

receptive to increasing overhead in the form of quality control, procedures, status reports, etc.?

Second, in order to obtain synergies between MDMS' PINPOINT System and Sabre's reassessment data, the information must be collected in the same jurisdiction. *Many cities in which MDMS has a strong position, or which MDMS feels is an important strategic location, are districts which have a very strong tradition of conducting in-house reassessments*, e.g. Boston.

Third, *the number of large clients (>300,000-parcels) is small and their reassessment cycles are highly irregular.* Several years ago, PRC entered the reassessment market by acquiring a reputable firm with a solid list of clients. Their goal was to conduct reassessments for the largest jurisdictions. Within 3 years, PRC exited because of the lack of steady business.

## D
## PINPOINT Market Size

The opportunity for selling information collected from MDMS' PINPOINT System, is potentially very large. *INPUT estimates a portion of the total 1988 domestic U.S. latent potential market to be $450 million.* Real dollars currently expended are assumed very small due to the embryonic nature of the service. INPUT's estimates are preliminary and require further testing of assumptions and the addition of other potential PINPOINT markets.

# III. 1989 Real Estate Reassessment Market Size

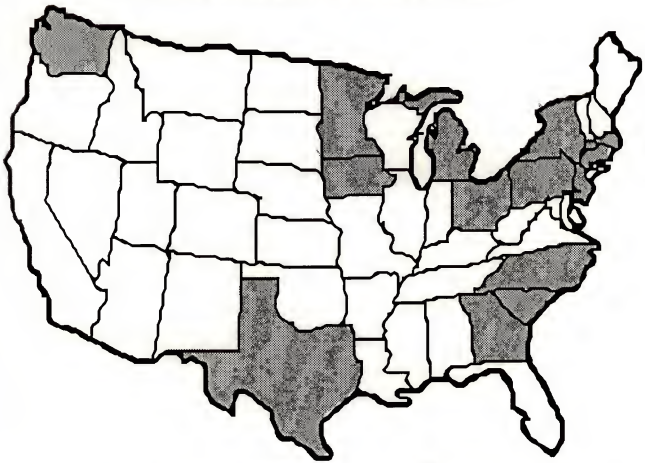
## A
## Forecast Methodology

The 1988 real estate reassessment market was estimated according to the following methodology:

1. Identify states with over 1,000,000 parcels within all SMSAs (standard metropolitan statistical areas) which contract outside for real estate reassessment services.
Exhibit 2 shows the 14 states which use the services of real estate reassessment companies.

EXHIBIT 2

## STATES WHICH CONTRACT OUTSIDE FOR ASSESSMENT SERVICES, 1988



States which contract for assessment services

| State | Number SMSA Parcels (000s) |
|---|---|
| CT | 64 |
| GA | 748 |
| IA | 383 |
| MA | 388 |
| MI | 968 |
| MN | 843 |
| NJ | 317 |
| NY | 2,090 |
| NC | 1,026 |
| OH | 2,234 |
| PA | 2,600 |
| SC | 603 |
| TX | 4,247 |
| WA | 1,273 |
| | 17,784/59,333 = 30% of all U.S. SMSA parcels |

2. Within these 14 states, determine the number of parcels in the largest SMSAs (over 25,000 parcels). (Reference 1)

3. Determine the total price for revaluing each parcel and the price to provide each component service such as mapping, reappraisal, hardware and software, and administration (Reference 2, 3).

4. Determine the frequency of appraisal within each state (Reference 4).

5. Formula:

| # parcels | x | $/parcel | x | 1/frequency of appraisal | |
|---|---|---|---|---|---|
| $17.8 MM | x | $50 | x | 1/5.5 yrs | = real market size |

Based upon the 1988 statewide reassessment of Kansas, it was conservatively estimated that the average fee per parcel in all of the 14 states which vend out reassessment would run $15 for mapping, $25 for mass appraisal, $5 for hardware and software and $5 for administration which includes notifying and billing jurisdiction clients of the reassessment values.

The average reassessment cycle for the 14 states which vend out reassessment is 3.64 years. Because some jurisdictions do not revalue properties within the limits prescribed by law, a conservative estimate of once every 5.5 years was applied to the states.

Exhibit 3 provides INPUT's estimates for these component services and the total 1988 market.

EXHIBIT 3

## 1988 MARKET FOR REAL ESTATE REVALUATION SERVICES (in 000's)

| State | Freq. Reval'n | # Parcels | Mapping | Appraisal | Computer | Admin | Total |
|---|---|---|---|---|---|---|---|
| Connecticut | 10 | 64 | $175 | $291 | $58 | $58 | $582 |
| Georgia | 1 | 748 | $2,040 | $3,400 | $680 | $680 | $6,800 |
| Iowa | 2 | 383 | $1,045 | $1,741 | $348 | $348 | $3,482 |
| Mass. | 1 | 333 | $908 | $1,514 | $303 | $303 | $3,027 |
| Michigan | 1 | 968 | $2,640 | $4,400 | $880 | $880 | $8,800 |
| Minnesota | 4 | 843 | $2,299 | $3,832 | $766 | $766 | $7,664 |
| New Jersey | 1 | 317 | $865 | $1,441 | $288 | $288 | $2,882 |
| New York | 1 | 2,090 | $5,700 | $9,500 | $1,900 | $1,900 | $19,000 |
| N. Carolina | 8 | 1,026 | $2,798 | $4,664 | $933 | $933 | $9,327 |
| Ohio | 3 | 2,234 | $6,093 | $10,155 | $2,031 | $2,031 | $20,309 |
| Pennsylvania | 1 | 2,600 | $7,091 | $11,818 | $2,364 | $2,364 | $23,636 |
| S. Carolina* | 10 | 603 | $1,645 | $2,741 | $548 | $548 | $5,482 |
| Texas | 4 | 4,247 | $11,583 | $19,305 | $3,861 | $3,861 | $38,609 |
| Washington | 4 | 1,273 | $3,472 | $5,786 | $1,157 | $1,157 | $11,573 |
| Total/Avg. | 3.64 | 17,729 | $48,352 | $80,586 | $16,117 | $16,117 | $161,173 |

*No cycle

## B
## Comparison with U.S. Totals

The number of parcels in the US in 1981 was approximately 98 million. Of this number, approximately 60 million parcels were within SMSAs. Thus, the number of parcels located within the larger SMSAs of the 14 *states which conduct real estate reassessments with vendors represents only 30% of all SMSA parcels in the US and only 18% of all parcels in the US. Hence, this is a very conservative forecast.*

# IV. Key Factors Which Affect the Market

## A
## Major Unpredictable Factors

1. *Number and frequency of statewide reassessments.*

2. *Change in the percentage of jurisdictions which conduct in-house reassessments* and the percentage of jurisdictions which select vendors to perform the work.

The major factors determining whether a district conducts reassessments in-house or outside are:

- historical pattern,
- politics (how hot an issue the reassessment is),
- legislative requirements (length of cycle, staff requirements), and
- time since last reassessment.

## B
## Predictable Factors Which Gradually Increase the Size of the Market

1. The *number of parcels within jurisdictions is increasing* due to population growth in urban centers (between 1 and 3%/yr). (Reference 6).

2. The *assessment value of each parcel is increasing due to inflation.* Thus, assessors are being granted higher budgets with which to collect the increasing revenues.

3. *Property tax revenues are an increasing percentage of total revenue to local governments.* This is another reason assessment budgets have been increasing. (Reference 7).

4. *State legislatures are mandating more frequent and more thorough reassessments* (Reference 7).

5. The *cost of conducting reassessment is rising* at 3 to 10%/yr due to increases in salaries, equipment, and services (Reference 8).

6. *Computers are becoming increasingly common in assessment offices.* Seventy-two percent of all assessment offices had a computer in 1982. However, many systems are outdated and most are not utilized to their fullest potential. The reasons for the proliferation of computers are: (1) increases in computer capabilities and concurrent decreases in price, (2) increases in the complexity of the assessor's tasks, (3) increase in the state- mandated use of computers in the assessment process, and (4) the increasing cost of personnel conducting the assessment manually (Reference 9).

## C
## Predictable Factors Which Gradually Decrease the Size of the Market

1. A fair percentage of *jurisdictions do not implement reassessments as frequently as mandated by law* for several reasons including the fear generated by the spectre of mass appeals. Traditionally, 15-20% of the assessments are appealed. However, in jurisdictions which revalue properties on an annual basis, the average number of appeals is only 1% (Reference 10).

2. *Vocal opposition groups* wishing to discredit the entire reassessment process, reduce in the number and frequency of reassessments.

3. The decision to conduct the reassessment process in-house is often motivated by the *jurisdiction's desire to have continuity during reassessments and familiarity with parcels* between reassessments.

4. If *California's Proposition 13*, which limits the reassessment increase for homeowners, spreads to other states, the reassessment market will decrease.

# V. 1993 Market Size

1. Based upon the factors listed in Section IV above and conversations with trade association executives and competitors in the field (Reference 5), a *conservative growth estimate of 5% per year between 1988 and 1993* is forecast.

2. There is no way to predict if any single state will revise its current in-house reassessment procedure to solicit bids from vendors in the 1988-1993 period. Historically, the number of states that have changed their policies have been few.

3. There is no way to accurately predict which state(s) will conduct *statewide reassessments* in specific years. However, there is a high probability that at least two states, Oklahoma and Indiana, will conduct reassessments within the next 5 years. This *would create a market spike of 15% in that particular year.*

4. The *1993 estimate of the real estate reassessment market is $200 MM if no state reassessments occur in that year and approximately $240 MM if reassessments do occur.*

5. Exhibit 4 provides INPUT's estimates for the total 1993 market and component services.

EXHIBIT 4

**1993 MARKET FOR REAL ESTATE REVALUATION SERVICES (in 000's)**

| State | Freq. Reval'n | # Parcels | Mapping | Appraisal | Computer | Admin | Total |
|---|---|---|---|---|---|---|---|
| Connecticut | 10 | 64 | $223 | $371 | $74 | $74 | $742 |
| Georgia | 1 | 748 | $2,603 | $4,338 | $868 | $868 | $8,677 |
| Iowa | 2 | 383 | $1,333 | $2,221 | $444 | $444 | $4,443 |
| Mass. | 1 | 333 | $1,159 | $1,931 | $386 | $386 | $3,863 |
| Michigan | 1 | 968 | $3,369 | $5,614 | $1,123 | $1,123 | $11,229 |
| Minnesota | 4 | 843 | $2,934 | $4,889 | $978 | $978 | $9,779 |
| New Jersey | 1 | 317 | $1,103 | $1,839 | $368 | $368 | $3,677 |
| New York | 1 | 2,090 | $7,273 | $12,122 | $2,424 | $2,424 | $24,244 |
| N. Carolina | 8 | 1,026 | $3,570 | $5,951 | $1,190 | $1,190 | $11,902 |
| Ohio | 3 | 2,234 | $7,774 | $12,957 | $2,591 | $2,591 | $25,914 |
| Pennsylvania | 1 | 2,600 | $9,048 | $15,080 | $3,016 | $3,016 | $30,160 |
| S. Carolina* | 10 | 603 | $2,098 | $3,497 | $699 | $699 | $6,995 |
| Texas | 4 | 4,247 | $14,780 | $24,633 | $4,927 | $4,927 | $49,265 |
| Washington | 4 | 1,273 | $4,430 | $7,383 | $1,477 | $1,477 | $14,767 |
| Total/Avg. | 3.64 | 17,729 | $61,697 | $102,828 | $20,566 | $20,566 | $205,656 |

*No cycle

# VI. Market Shares

The competitive environment is characterized by two major companies, Cole-Layer-Trumble and Sabre, a stable core of a dozen small ( <$5 million) companies and hundreds of other very small (<$1 million) companies which enter and leave the market each year. Relative market shares are listed in Exhibit 5.

EXHIBIT 5

**INPUT'S ESTIMATE OF MARKET SHARE OF THE REAL ESTATE REASSESMENT MARKET, 1988**

| Company | 1988 Revenues | % of Market | Lines of Business |
|---|---|---|---|
| Sabre | $15 MM | 11% | full service |
| Cole-Layer-Trumble | $25-45 MM | 24% | full service |
| John Cleminshaw | $10 MM | 7% | appraisal, computer |
| PAC | out of business | 0% | full service |
| Sigma | $5 MM | 3% | software, hardware |
| MicroSolve | $5 MM | 3% | software |
| Southeastern | $5 MM (acquired) | 3% | software |
| Hunnicutt | $5 MM | 3% | mapping, appraisal |
| DD Hamilton | $5 MM | 3% | mapping |
| Marshall & Swift | $5 MM | 3% | software |
| Other Vendors (under $1 MM ea) | $60 MM | 40% | varied |
| TOTAL | $140 MM -160 MM | 100% | |

See Appendix B for a list of current competitors and the location of their headquarters.

# VII. Market for PINPOINT

## A
## Background

INPUT views the PINPOINT market as a latent potential market of vast proportions. The forecast of real dollars expended depends on the pace of vendors' development of this market over a number of years. Due to the uncertain nature of that development, the INPUT forecast below describes only the latent potential of *one facet* of the business. While there are a myriad of value-added possibilities for PINPOINT data, this INPUT forecast assumes only the marketing of name, address, and simple demographic descriptions contained in a relational database capable of sorting by customer specifications.

## B
## Assumptions and Forecast

1. Four million new and existing homes are sold each year. Seventy percent of the homes sold are in urban areas (Reference 11).

2. The distribution of homes sold conforms to the distribution of population in the US. That is, in more populous areas, more homes are sold.

3. 20%, or 800,000 homeowners represent the most affluent households. The names of these homeowners are worth more than the names of other homeowners to potential PINPOINT customers.

4. The name of each homeowner is of value to both national and local clients.

5. The value of names is higher to local clients than to national clients.

6. There are 250 medium and large SMSAs in the US.

7. There are, on average, 4 localized districts (towns or municipalities) within each SMSA.

8. 500 national clients will pay $.05 per name for the most affluent households. National clients include major department stores (Sears, JC Penney's, Montgomery Ward), catalog and mail order operations (American Express, MasterCard, Spiegel, L.L. Bean, Sharper Image, Brookstone, Crate & Barrel, Little Switzerland, Talbott, etc.)

9. 5,000 national clients will pay $.075 per name for a subset of names which have been selected from the database based upon the customer's specifications.

10. 4,000 clients per local district will pay $.10 per name (list of potential clients appears in Appendix C).

11. INPUT's Pinpoint market forecast assumptions need to be validated.

12. Potential customer needs may be over- or under-estimated.

13. New or additional value-added opportunities may appear.

EXHIBIT 6

## INPUT'S ESTIMATE OF PINPOINT MARKET, 1988

| Segment | # Names | $/Name | # Clients | Total |
|---|---|---|---|---|
| National | 800,000 | $0.05 | 500 | $20 million |
| | 80,000 | $.075 | 5000 | $30 million |
| SMSA | 1,000 | $0.10 | 4,000 | $0.4 million per town |
| 4 towns/SMSA | | | | $1.6 million per SMSA |
| 250 SMSAs | | | | $400 million for US |
| Total | | | | $450 million |

## C
## Potential PINPOINT Markets

Some of the other uses of PINPOINT data are:

1. Telemarketing
With the addition of telephone numbers, the name, address, and simple demographic data can be made available to telemarketers. Sorting by income, neighborhood, or other variables can provide qualified leads to a variety of clients.

2. Direct Mail
By mapping PINPOINT data onto mail carrier routes, clients can more efficiently target localized areas for such purposes as promotions, election of political candidates, or distribution of general information announcements.

INPUT has identified at least a dozen firms which currently sell lists of new homeowner names in specific US regions. Prices for the one-time use of such lists run from $45 to $90 per 1,000 names. If sorted, the price increases $10 per 1,000 names. If names are provided on mailing labels, the price increases $5 per 1,000 names.

3. Fulfillment
Services can be offered to customers who might by not only the names of prospects, but also promotional plans and budgets; layout and copy for the the flier, brochure, and letter; printing of the literature; addressing; and mailing.

4. Multiple Fulfillment
Like American Express or "Carol Wright", MDMS could solicit clients to send a promotional coupon or letter to targeted consumers. The client's letter would be inserted in

a larger envelope with other business' letters, going to the same consumers for a cost-effective direct mail campaign.

5. On-line access to information
MDMS could offer on-line access to PINPOINT information for a monthly subscription fee and per use charges.

6. Possible Information Tie-Ins with Other Information Services
MDMS may purchase information from such firms as TRW Credit Systems, or A.C. Nielson Co. to provide more information on individual homeowners to potential MDMS clients. For example, TRW Credit Systems could provide credit histories and A.C. Nielsen could provide opinions, purchasing behavior, and psychographics.

# VIII. Observations

## A
## General Observations

*Definition of Reassessment*

The definition of "reassessment" differs with jurisdiction. Although many jurisdictions have annual reassessments, this commonly means they run regression analyses and enter new valuations for improved, new, and recently sold properties. Jurisdictions examine each individual property only once every three or four years, or less frequently.

## B
## Reassessment Market

*Market Size*

1. The market is in equilibrium at the moment. Although the frequency of reassessments is mandated by law, implementation can be delayed. And so, the timing of these crises can't be predicted with any accuracy. They create major fluctuations in market size.

Kansas completed a 1,500,000-parcel reassessment for the entire state, its first reassessment in 20 years, on January 1, 1989. This one state, rather small in total number of parcels, increased the market by about 10%. It is rumored Oklahoma and Indiana are approaching the "crisis" stage and are due for statewide reassessments soon. Together they could increase the market by about 15%. The market can almost DOUBLE if California and Florida turn to vendors for reassessment rather than keeping it in-house. (This is highly unlikely, however.)

2. Vendors are more likely to be used in very small jurisdictions (<25,000 parcels) and in very large jurisdictions. Small districts require outside help because the resources in the assessor's office are so small, that the assessor is usually not even a full-time employee. Larger areas (>300,000 parcels) use contractors when the lapse since the last reassessment is excessive and the political climate is volatile.

3. In many jurisdictions, vendors maintain a steady customer base by remaining after their appraisal work is done to explain their methodology at the appeal hearings and to update the data base between reassessments. In those jurisdictions where the appraisal firm packs up and leaves as soon as their work is complete, there is high turnover among vendors.

*Competitors*

4. Cole-Layer-Trumble has experience with 200,000+ parcel clients. They have conducted reassessments of 22 state capitals, including Atlanta and Indianapolis.

5. Competitors and trade association officials generally agree there are two major players in the market: Cole-Layer-Trumble with approximately $25-45 million in revenues and Sabre with $15 million in sales. The next largest "full service" company is

John Cleminshaw which has sales under $10 million. There are at least 6 software companies with annual sales of about $5 million. The remainder of the market is composed, we believe, of 100's of very small ($0 to $1 million) companies which perform a variety of services. (Note: No trade association or other group that INPUT contacted has ever counted or kept track of them.)

6. Because entry barriers are so low, an individual can break off from an established firm to start his own company with little capital. These companies enter and exit the market frequently. They provide this important function:

> Some states require the reassessment effort to be conducted by a company which is headquartered in their state. Cole-Layer-Trumble acquires small firms with headquarters in a particular state in order to bid on jobs in different states.

7. No one INPUT interviewed was able to answer the question: if there are only 2 large companies in the market, who else conducts the reassessment for all of the large jurisdictions which do not conduct their reassessments in-house? Or do these two firms conduct ALL the outside reassessments for large jurisdictions?

8. PRC entered the market some years ago by acquiring a company with a good reputation and a solid list of clients. For 3 years PRC did well. When the large contract they had was completed, they were unable to locate other large contracts which would use their staff, equipment and expertise. Eventually, they left the business. The difference between the 15,000-parcel market and the 300,000+ parcel market is the steadiness of the stream of clients.

# IX. Open Questions

## A
## Reassessment Market

1. Are any states considering adopting a Proposition 13 of their own?

2. Are reassessment services a commodity or can they be differentiated from other reassessment products and services?

3. What opportunities exist for providing consulting and planning services to state and local government?

4. Is there a business opportunity for franchising reassessment services in the US?

5. Are there economies of scale in reassessment operations?
At first glance, there seem to be few economies in the two major tasks, mapping and appraisal, since each property must be physically examined, regardless of how many parcels there are in the district. There are economies in the computer operations, but they represent only 20% of the total cost of reassessment.

6. Are any other large information service companies considering entering the market?

7. What more can be learned about Cole-Layer-Trumble as a potential alternate or additional acquisition for MDMS?

## B
## PINPOINT Market

1. What opportunities are there to capture data on renters' (in addition to homeowners') moves?

2. Would alliances with other data base providers add value to the combined data base? Which potential partners could add the greatest value (TRW Credit Systems, A.C. Nielsen, etc.)?

# X. References

1. US Department of Commerce, Bureau of the Census *Taxable Property Values & Assessment-Sales Price Ratios*, 1982 Census of Governments, Volume 2, GC82(2), Table 21.

2. Donatello, George "Kansas Reappraisal" *Assessment Digest*, March/April 1988, Volume 10, No. 2., p.29-34. This article appears in Appendix 1.

3. Conversation 3/27 with Richard Almy, Executive Director, International Association of Assessing Officers.

4. Clatanoff, Robert *Patterns of Property Tax Administration in the United States*, International Association of Assessing Officers, Research and Information Series No. 5, June 1986, p. 74.

5. Conversations 3/27 with John Cleminshaw, President of John G. Cleminshaw (appraisal company) and Dr. Jim Moesch, President of Sigma Systems (appraisal software).

6. U.S. Department of Commerce, Bureau of the Census *County and City Data Book*, A Statistical Abstract Supplement, 1988, p. 32-35.

7. Clatanoff, Robert *Patterns of Property Tax Administration in the United States*, International Association of Assessing Officers, Research and Information Series No. 5, June 1986, p. 62, 64.

8. Conversations with vendors.

9. Clatanoff, Robert *Patterns of Property Tax Administration in the United States*, International Association of Assessing Officers, Research and Information Series No. 5, June 1986, p. 82.

10. Conversation 3/27 with Richard Almy, Executive Director, International Association of Assessing Officers.

11. National Association of Realtors *Existing Home Sales, 1983*.

# Appendix A: Primary Assessing Units

## II ASSESSMENT ADMINISTRATION

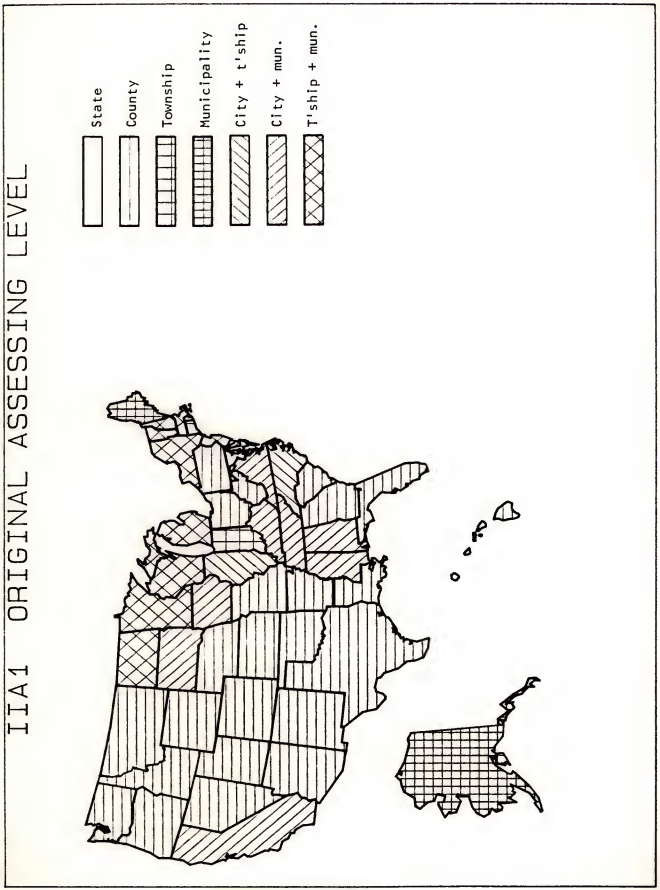
### II.A ASSESSING UNITS, CYCLES, AND RATIOS

### II.A.1 ORIGINAL ASSESSING LEVEL BY STATE

Levels of Government That Are Primary Assessing Levels

| | |
|---|---|
| State | Maryland |
| County | Alabama, Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wyoming |
| Township and Town | Connecticut, Illinois (some county), Indiana, Massachusetts (some municipal), Michigan (some municipal), Minnesota (some municipal), New Hampshire (some municipal), New Jersey (some municipal), New York (some municipal), North Carolina (some county), North Dakota (some municipal), Rhode Island (some municipal), Vermont (some municipal), Wisconsin (some county and municipal) |
| Municipal | Alaska, District of Columbia, Maine |

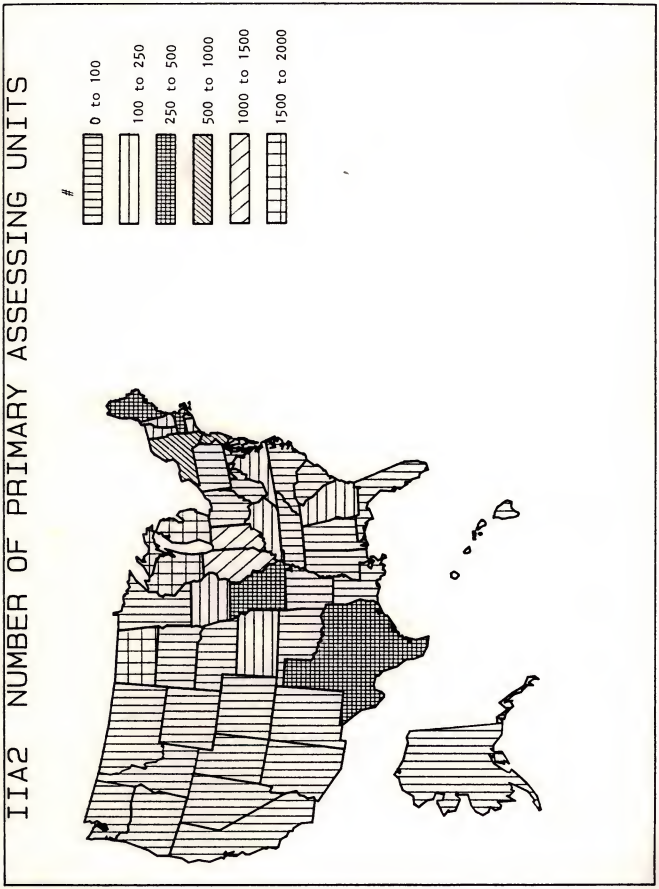
Source: Commerce Clearing House, State Tax Guide (Chicago, 1986), volume 2; Survey of State Level Assessment Administration Practices (Lansing: Michigan State Tax Commission, 1983?), question 5.


IIA1 ORIGINAL ASSESSING LEVEL
State
County
Township
Municipality
City + t'ship
City + mun.
T'ship + mun.

## II.A.2 NUMBER OF PRIMARY ASSESSING UNITS BY STATE

| State | Number of Units |
|---|---|
| Alabama | 67 |
| Alaska | 25 |
| Arizona | 14 |
| Arkansas | 75 |
| California | 58 |
| Colorado | 63 |
| Connecticut | 169 |
| Delaware | 3 |
| District of Columbia | 1 |
| Florida | 67 |
| Georgia | 159 |
| Hawaii | 4 |
| Idaho | 44 |
| Illinois | 1,426 |
| Indiana | 1,008 |
| Iowa | 118 |
| Kansas | 105 |
| Kentucky | 120 |
| Louisiana | 64 |
| Maine | 498 |
| Maryland | 1 |
| Massachusetts | 351 |
| Michigan | 1,512 |
| Minnesota | 96 |
| Mississippi | 82 |
| Missouri | 417 |
| Montana | 1 |
| Nebraska | 93 |
| Nevada | 17 |
| New Hampshire | 234 |
| New Jersey | 567 |
| New Mexico | 32 |
| New York | 983 |
| North Carolina | 100 |
| North Dakota | 1,721 |
| Ohio | 88 |
| Oklahoma | 77 |
| Oregon | 36 |
| Pennsylvania | 67 |
| Rhode Island | 39 |
| South Carolina | 46 |
| South Dakota | 70 |
| Tennessee | 95 |
| Texas | 253 |
| Utah | 29 |
| Vermont | 249 |
| Virginia | 136 |
| Washington | 39 |
| West Virginia | 55 |
| Wisconsin | 1,837 |
| Wyoming | 23 |
| Total | 13,434 |

Source: Richard R. Almy, Land Record Systems in the United States (Chicago: IAAO, 1979), p. 12; adjusted for subsequent events in Hawaii and Texas.


IIA2 NUMBER OF PRIMARY ASSESSING UNITS
#
0 to 100
100 to 250
250 to 500
500 to 1000
1000 to 1500
1500 to 2000

## APPENDIX B
## SABRE'S COMPETITORS

| Co Name | City | State | Appraisal | Map | Hdwr | Sfwr | Admin | Consulting | Other |
|---|---|---|---|---|---|---|---|---|---|
| Business Records Corp | St Cloud | MN | x | x | x | x | x | | |
| Cleminshaw, John G. | Hudson | OH | x | | | x | | | |
| Cole Layer Trumble | Dayton | OH | x | x | x | x | x | | |
| D.D. Hamilton | Marshfield | MO | | x | | | | | |
| Hunnicutt & Associates | Ebensburg | PA | x | x | | | | | |
| KVS Info Systems | Amherst | NY | | | | | | | |
| Marshall & Swift | Los Angeles | CA | | | | x | | | |
| MicroSolve | Belmont | MA | | | | x | | | |
| MMC | Chelmsford | MA | x | | | | | | |
| Prof. Appraisal Company | Arlington | TX | | x | | | | | |
| Sidwell Co | W. Chicago | IL | | x | | | | | |
| Sigma Systems Technology | Buffalo | NY | | | x | x | | | |
| Southeastern Computer | Clearwater | FL | | | | x | | | |

# Appendix C: List of Potential Pinpoint Customers

## House Remodeling & Garden

Hardware Store
Lumber Yard
Windows and Doors
Paint Store
Glass Store
Water Softener Manufacturer
Contractors
Restorers-iron work, mantels, moldings
Carpenters
Carpet Cleaners
Fix-It Services
Locksmith
Garden and Yard Maintenance Services
Nurseries
Pool and Patio Construction
Pool and Patio Accessories
Pool Cleaner
Cleaning and Maintenance
Landscapers
Electricians
Plumbers
Roofers
Exterminators

## House Interior & Decorating

Carpet Layers
Upholsterers
Wallpaperers, Painters
Plasterers
Interior Designers
Furniture Stores
House Cleaners
Wallpaper Stores
Bath Fixtures
Security Services
Appliance Store
Housewares
Storage Facilities

## Personal Services

Doctors
Dentists
Chiropractors
Lawyers
Financial Planners
Banks
Tailors
Dry Cleaners
Hairdressers
Insurance Agents
Maid Service

## Child-Related Products and Services

Day Care
Sports and Hobby Instruction
Diaper Service
Baby Accessories
Children's Clothing
Toy Stores
Children's Entertainments
Pediatricians

## Home Entertainment

Personal Computers and Peripherals
Stereo Equipment
Television
Video Recorders
Video Stores
Magazines

## Leisure Pursuits

Restaurants
Theater Subscriptions
Ticket Sales
Sporting Equipment
Sports and Hobby Instruction
Vacation Services
Health Clubs

Miscellaneous

Political Candidates
Charitable Organizations
Vetinarians

# MDMS Property Information Services

## Market Sizing Background Material

1. Battle Creek, Michigan RFP.
2. Names and addresses of large local assessment jurisdictions.
3. "Kansas Reappraisal," article from *Assessment Digest*, March 1988.
4. Advertisements of KE, Inc. and 5 Sabre advertisements.
5. *Standards on Mass Appraisal of Real Property*, 3/84, IAAO.
6. *Assessment Jurisdictions and Agency Resources in U.S.*, Gary Langhoff, IAAO, 8/88.
7. *Patterns of Property Tax Administration in U.S.*, Robert Clatanoff, 6/86.